



## Understanding Lab Tests

Dogs and cats age much faster than humans do. As animals age, they are prone to many of the same diseases as humans: diabetes, kidney and liver disease, heart disease, cancer, hypothyroidism (low thyroid hormone level) and hyperthyroidism (high thyroid hormone level).

If we can catch diseases at an early stage, we have a better chance of helping your pet. That's where laboratory tests come in. We recommend blood testing at least every year for pets 8 years or older. Large breed dogs tend to age quicker, therefore we recommend testing at 5 years of age.

### Chemistry Blood Tests



**Alanine Amino-transferase (ALT):** Increased levels of this enzyme indicate liver damage or disease.

**Alkaline Phosphatase (ALP):** Elevations can indicate liver swelling or decreased bile flow caused by liver disease or endocrine disorders such as thyroid disease, Cushing's disease, or Addison's disease. It may also be an indicator of

certain bone diseases.

**Amylase (AMY):** This is an enzyme produced to help digest food. Elevated levels can indicate disease of the pancreas, intestines, or kidney.

**Bile Acids (BA):** Bile acids are one of the best measures of liver function and are vital in identifying and monitoring liver disease. It is also important to monitor bile acids when taking medication that may affect the liver.

**Blood Urea Nitrogen (BUN):** BUN is made in the liver and removed from the body by the kidneys. It helps us evaluate both of these organs.

**Calcium (Ca):** This is important to monitor for early signs of certain cancers. Imbalanced calcium and phosphorus levels are indicative of certain metabolic diseases such as those of the parathyroid gland and kidney disease.

**Cholesterol (CHOL):** Elevated levels may be an indication of a variety of disorders including hypothyroidism in dogs, liver, and kidney disease.

**Creatinine (CRE):** An important value to monitor kidney function.

**Electrolytes (Na+, K+):** Potassium levels are important in the diagnosis and treatment of several life threatening diseases. Normal sodium balance is important for total body function.

**Gamma-Glutamyltransferase (GGT):** Measurement and monitoring of this enzyme is important for differentiating types of liver disease.

**Globulin (GLOB):** A blood protein that indicates problems such as inflammation or infection.

**Glucose (GLU):** Elevated levels can indicate problems such as diabetes. Low levels can be associated with liver disease or other issues.

**Phosphorus (PHOS):** Phosphorus levels can change with kidney disease and some conditions can change the balance of phosphorus with calcium.

**Thyroxine Test (T4):** An excellent screening test for function of the thyroid gland in dogs and cats. The thyroid gland plays a major role in metabolism.

**Total Bilirubin (TBIL):** An important value to evaluate the liver as well as when the red blood cell count is low.

**Total Protein (TP):** We utilize this value to evaluate many conditions such as anemia and disease of the liver, kidney, and gastrointestinal tract.



### **Complete Blood Count (CBC)**

**Red Blood Cells (RBC):** They carry oxygen to the tissues of the body and remove carbon dioxide to be exhaled from the lungs. Anemia results when RBCs are not present in sufficient numbers. Determination of the cause of anemia is vital.



**White Blood Cells (WBC):** They play a major role in your pet's immune system function. Normal baseline levels are very important

to determine the importance of changes seen with infection or inflammation. Elevations noted without signs can be an early signal of a problem.

**Platelets:** These are important to evaluate the ability of blood to clot.

### **Urinalysis**

**Specific gravity:** This is a measure of the concentration of urine. The concentration can vary and tell us about hydration levels and kidney function.

**pH:** This determines the acidity or alkalinity of the urine. Infection and diet can change this value.

**Protein:** Protein can be increased with kidney disease or inflammatory disease.

**Glucose:** Increased levels indicate stress or diabetes.

**Ketones:** Ketones usually indicate serious complications of diabetes.

**Blood:** Blood in the urine means inflammation or infection. Animals with bladder stones often have it.

**Bilirubin:** Evidence of this can indicate liver disease or a breakdown of red blood cells. It is often detected in urine samples before becoming elevated in the blood.

**White blood cells:** WBCs indicate inflammation or infection, usually a urinary tract infection.

**Casts:** These are molds of the kidney tubules and can be composed of a variety of material. The type of material and shape can differentiate between different diseases. Often, casts are indicative of kidney disease.

**Crystals:** These mineral deposits form different shapes. Excessive crystal formation can be an indicator of bladder stones.

**Bacteria:** Urine is normally sterile. Therefore, bacteria's presence indicates an active infection.

